

**LASKARIS**

Serial No. **09/854,939**

March 21, 2003

**IN THE CLAIMS**

The following claim set replaces all prior versions, and listings, of claims in the application:

1. (currently amended) A rotor for a synchronous machine comprising  
a cylindrical magnetic solid rotor core having at least one conduit extending  
through the core and ~~parallel~~ perpendicular to a core axis;  
a race-track super-conducting coil winding extending around the rotor core,  
wherein said coil winding is in a plane of the at least one conduit;  
a coil support extending through the at least one conduit of the core and attaching  
to opposite long sides of the coil winding, wherein a gap is between said coil support and  
said conduit such that the coil support is thermally isolated from said conduit, and  
a pair of end shafts extending axially from said core and attached to the core.
2. (previously amended) A rotor as in claim 1 wherein the rotor core includes a  
pair of flat surfaces formed on opposite long sides of the rotor core, and said long sides of  
the coil winding are adjacent the flat surfaces, and wherein said at least one conduit has  
an opening on each of said flat surfaces.
3. (cancelled)
4. (original) A rotor as in claim 1 wherein the coil support system and coil are at  
cryogenic temperatures, and the coil support system is thermally isolated from the rotor  
core.
5. (previously amended) A rotor as in claim 4 wherein an insulating tube inserted  
in the at least one conduit of the rotor core separates the coil support from the core.

**LASKARIS**

Serial No. **09/854,939**

March 21, 2003

6. (original) A rotor as in claim 1 wherein the end shafts are a non-magnetic metal.
7. (original) A rotor as in claim 6 wherein the end shafts are stainless steel.
8. (original) A rotor as in claim 1 wherein the rotor core is a solid magnetic iron forging.
9. (original) A rotor as in claim 1 wherein the coil has a race-track shape.
10. (original) A rotor as in claim 1 further comprising a conductive shield around the rotor core and coil.
11. (original) A rotor as in claim 1 wherein one of said end shafts is a collector end shaft having collector rings and a cryogenic fluid coupling.
- 12-16. (cancelled)
17. (previously amended) In a synchronous machine, a rotor comprising:
  - a cylindrical rotor core having a pair of planer sections on opposite sides of the core and extending longitudinally along the core, at least one conduit extending through said core and having openings on each of said planer sections;
  - a super-conducting coil winding extending around at least a portion of the rotor core, said coil winding having a pair of side sections adjacent said planer sections of the core, and said side sections aligned with the openings of the at least one conduit;
  - a coil support extending through the at least one conduit and attached to the side sections of the coil winding, wherein said coil support is thermally isolated from the rotor core;
  - a first end shaft extending axially from a first end of the rotor core, and
  - a second end shaft extending axially from a second end of the rotor core.

**LASKARIS**

Serial No. **09/854,939**

March 21, 2003

18. (original) In a rotor as in claim 17 wherein the first end shaft includes a cryogenic coupling for providing cooling fluid to said coil winding.

19. (previously amended) In a rotor as in claim 17 wherein said coil support further comprises at least one tension rod extending through the at conduit of the core and said tension rod attaches to coil housings at opposite ends of the rod, wherein each coil housing wraps around one of the side sections of the coil.

20. (original) A rotor as in claim 19 wherein the coil support and coil are at cryogenic temperatures, and the coil support is thermally isolated from the rotor core.

21. (previously amended) A rotor as in claim 20 wherein an insulating tube inserted in the conduit of the rotor core separates the tension rod from the core.